

REMARKS

We are enclosing a Substitute Declaration claiming priority from DE 103 07 672.2. The priority document is also enclosed.

Also enclosed is an Information Disclosure Statement listing certain prior art cited in corresponding European and Japanese applications.

Claims 1 to 7 have been replaced by new claims 9 to 13. We submit that these new claims are not anticipated by Poore '774, Muscara '268 and are not obvious from the prior art of record whether considered singly or in any proper combination.

According to independent claim 9, the invention now concerns

a method for dispensing a specific minimum amount of a liquid or pourable substance into a container to fill the container during a filling process, in the course of which the amount of dispensed substance is measured and the filling process is terminated by the closing of a valve as soon as the amount of dispensed substance has reached a final value, said method comprising the steps of

dispensing the substance into a first container in a series of several dispensing steps where in a first and at least one subsequent dispensing step, respectively, the valve is closed to interrupt the filling process so as to allow the determination of the tailing of the substance that occurs during the closing of the valve, and

establishing the final value for terminating a last dispensing step in said series in consideration of the desired minimum amount of the substance and by factoring-in several of the tailings of the substance determined in the preceding dispensing steps during the closing of the valve.

The subject matter of claim 9 stems from original claims 1 and 4 and to what is described in specification paragraph [0011].

We submit that the subject matter of claim 9 is not anticipated by either Poore '774 or Muscara '268. The Examiner's application of those references seems to be based on a misunderstanding of the teaching according to the invention.

It is an essential feature of the invention

that the tailing of the substance is **determined** in one or more dispensing steps before the container is totally filled.

With this determination, i.e. a **measurement**, of the tailing that occurs during the closing of the valve, the final value for terminating the subsequent/last dispensing step in the series can be established in such a way that the filling of the container which is actually reached equals the filling that was originally wanted. In other words, with the knowledge of the tailing of the substance that occurs during the closing of the valve, the last dispensing step can be determined at the correct time in order to achieve a correct filling of the container.

Such a method is neither known from Poore, Muscara nor from any other prior art document of record nor from the ordinary filling of a gas tank. Nor is it known from the

prior art either that the final value for terminating the last dispensing step factors in **several**, i.e. more than one of the tailings of the substance determined in the preceding dispensing steps during the closing of the valves.

Poore discloses a beverage dispensing system having a top off feature which takes into account the foaming of the substance poured into a container. That system includes a timer 42 which records the amount of time that a flow valve has been manually opened to allow the substance to flow into the container. When the foam reaches the top of the container, the valve is closed manually to stop the flow. The timer stores in its memory the time period that the valve was initially open (the primary pour cycle), and monitors the time period that the valve is off (the wait period). When the foam subsides, the operator again manually opens the valve for a top-off cycle allowing the operator to finish filling the container. The timer has now stored the first on-time, the subsequent off-time and is now monitoring the valve to determine the second on time. Thus in Poole, the filling of the first container is done manually by an operator. The tailing is never determined or measured. Rather, the topping off is based on the time that it takes for the foam in the already-poured substance in the container to settle. That is, the topping off cycle is based on what is already in the container, not what is in the nozzle after the fill valve is closed.

Muscara '268 discloses an apparatus for dispensing a liquid such as paint into containers. As described in the paragraph bridging Cols. 2 and 3 of that patent, the filling operation commences with a first container which is initially filled via a valve and nozzle until a selected percentage of the predetermined weight is introduced into the container.

This is measured by an associated scale which through an associated electrical circuit closes the valve. Subsequently the valve is opened and closed intermittently to introduce additional amounts of paint into the first container until the predetermined desired weight is reached within an acceptable tolerance. A second container is then filled with paint until preferably 90% of the predetermined final amount is introduced whereupon the associated fill valve is closed and additional amounts of paint are introduced in steps until the predetermined amount is reached. During this filling of the first and second containers, a microprocessor, knowing the predetermined desired weight and the actual weight delivered to each container and the amount of paint introduced in each of the incrementing filling steps, calculates the amount of paint that is still left in the air between the nozzle and the container when the filling valve is closed after dispensing 80% of the predetermined weight. Having this information, the microprocess causes the scale under the third container to be reset to cut off the fill valve when the scale senses a weight just short of the predetermined weight. The third container can be filled continuously without any intermittent stoppages until the predetermined amount is reached within a selected tolerance.

Thus in Muscara, the tailing is never determined or measured. Rather the topping off function is determined by the weight of the substance in the container as measured by a scale under the container. Also as clearly stated there, the valve is not opened and closed intermittently until after the container is filled with a minimum percentage of paint. Only then is the valve opened and closed intermittently to introduce additional

amounts of paint into the container until the container contents reaches the desired weight.

Thus, both the Poole and Muscara topping off techniques are based on a determination of certain characteristics of the substance already poured into the first container such as the container weight, settling time and the like. There is never any determination or measurement made of tailing in the pour nozzle after the fill valve is closed.

We submit further that the subject matter of claim 9 is not only new but is not obvious from the prior art either.

According to the claimed invention, several dispensing steps are used in order to determine the tailing of the substance that occurs during the closing of the valve. These at least two values for the tailing are used to factor in the tailing rate of the substance in the last dispensing step in order to determine the correct final value in order to achieve a correct filling of the first container. The use of **several**, i.e. two or more, dispensing steps as claimed to obtain several values for the tailing has the advantage that it is not necessary to fill several containers with too much or too little liquid before a correct tailing rate is determined that can be factored-in in order to find the correct final value for the last dispensing step. In other words, the use of only one single determination of the tailing when dispensing the liquid into the first container would lead to unstable fluctuations. This is due to the fact that the tailing that can be determined in one single measurement is always subject to statistical measuring uncertainties. Accordingly, it is necessary to have more than one value for the tailing in order to approach the correct value for the tailing, which is necessary for filling the container with the correct amount of liquid.

Taking into consideration **several** values for the tailing is not rendered obvious from any of the prior art documents. This is especially true for JP 2002-087401 cited in the accompanying IDS. In this document it is described to interrupt the filling of the container **once** in order to determine the tailing of the substance during the closing of the valve. The tailing determined in this single measurement is then used for factoring-in in the last dispensing step in order to determine the final value for termination of the last dispensing step. However, as already stated above, such a method will be subject to unstable fluctuations due to the unavoidable measuring uncertainties for the tailing.

Further, from JP 2002-087401 it is known to interrupt the filling of the container two times. However, only the tailing determined in the second dispensing step is used for factoring-in in the last dispensing step, which leads to the same problems mentioned above, i.e. unstable fluctuations.

As a result, the claimed invention has neither been known nor been rendered obvious from the prior art of record.

Claims 10 to 13 being dependent upon claim 9 are allowable for the same reasons.

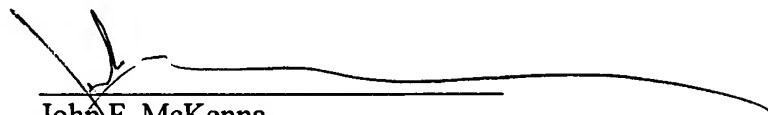
Accordingly and for the foregoing reasons, this application should now be allowed.

PATENTS
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No. 03-1237.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John F. McKenna', is written over a horizontal line. The signature is stylized with a large, sweeping 'J' and 'M'.

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